

Aden

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• [312]

That Aden still possessed some fine buildings even as late as 1710 we know from the record left by a French traveller who, after referring to the "handsome" aqueduct which had been built originally in 1500 to bring water into the town from Sheikh عثمان ten miles away, and deploring the state of the fortifications, referred to the town in the following terms:

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"The city is still considerably large and one may still see several handsome houses two storeys high with flat roofs, but

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there is also an abundance of rubbish and ruins. It must be

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owned that there is nothing finer of its kind than the baths there.

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They are lined with marble or jasper and covered with a handsome dome, having a hole at the top to let in light, and adorned on the inside with galleries supported by magnificent pillars."¹

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There was no sign of this delightful place when I arrived, nor were there any public baths, swimming or otherwise, until twenty-four years later when I opened the handsome Municipal Swimming Bath in Holkat Bay, but by 1931 Aden was by no means in an "exigent condition of poverty and neglect". Far from it; it was a flourishing town, though all that remained of the ancient splendour was the tall white minaret in Crater overlooking what is now the Football Stadium. A lonely ghost from the past whose mosque has long since disappeared.

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My disagreeable first impression remains with many travellers for the rest of their lives and the mere mention of the name Aden is sufficient to conjure up in their imaginations an exaggerated recollection of heat, haze and noise and, above all, a barrenness beyond belief.

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In the early nineteen-thirties fresh water from wells in the village of Sheikh عثمان had only recently been brought in to the main town and the population were still dependent mainly on condensed water for drinking purposes, and there was virtually no water at all for gardens or any other form of cultivation. Only a few like myself succeeded in penetrating the haze and forgiving the lack of vegetation and the discomfort of prickly heat, as we became more and more absorbed with the people and their problems and travelled beyond the

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¹ Dr. J. C. Young, *Antient History of Aden*, 1929.

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Government Guard Post above the headworks of the Bana ⁰⁰⁰
canal system, which irrigates the Western half of the plain
and makes possible the valuable cotton crop.

The next day, leaving the motor transport on the flat ground
below the Government Guard Post and taking to horses,
camels or donkeys or our feet, as we felt inclined, we moved
into the hills. My friend started on a horse but rather abruptly
parting company with the animal he took to a camel the next
day, but finding it no easier to keep his seat and rather farther
to fall, he changed to a donkey on the third day. However,
he was no more successful with the ass and he then walked
without further misadventure.

Personally, I have always preferred to ride a donkey, which
though not a very dignified proceeding was one which experi-
ence had taught me, especially in hilly country, was the most
likely to get me to my destination in one piece and with the
least fatigue. The Sultan had sent his own donkey for my use
and I rode the animal there and back, except on the passes and
on Al Qara hill itself, without mishap. The baggage travelled
on camels and the two passes we had to negotiate on this journey
tried severely even these hardy animals accustomed as they
were to stony wadis and rocky mountain gatha. For the greater
part of the time we travelled along the beds of the steep-sided
mountain valleys, dry for most of the way, but in places a
stream of clean fresh water rose unexpectedly to the surface
and after flowing for a mile or so over the stony bed of the
valley vanished underground as abruptly as it had appeared.
The water was crystal clear and delightfully cool and looked
most refreshing, but our doctor had warned us most strictly
that we must on no account drink it for fear of infection with
all sorts of dreadful diseases and must rely solely for drinking
on the water we carried with us on the baggage animals.

The Sultan had gone on ahead of us to prepare for our ⁰⁰⁰
arrival at Al Qara and had left his eldest son, Sultan
Muhammed, to act as our escort. Sultan Muhammed led the
cavalcade on a horse with a motley assortment of tribesmen
running at his stirrup, while I followed on my donkey with
an ex-Jemadar of the Aden Police as my companion. He rode

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000 I should not have been at all surprised to hear that my old friend Ash Shami had had a hand in the matter. We were not far from the Yemen border and the presence of the Governor of Aden in the Lower Yafa hills where only one of my predecessors had been before, and that nearly twenty-five years previously, implying as it did a potential extension of our direct influence, must have been disturbing to that astute gentleman.

437 The path down the hill was still impassable for animals
• 312 when we left Al Qara to return to Aden two days later, so
502 we were obliged to leave by the other track on the other side of the hill which is used by the women to bring water from the wells in the valley far below.

643 We started the return journey in the early morning after
793 bidding our host, the Sultan, farewell and thanking him for his
778 kindness to us during the visit. We left him there alone, the
534 descendant of the old priest kings of pagan pre-Islamic times,
789 surrounded by his wild tribesmen who in times of trouble venerate him as they would a God, for he is not the custodian of the drum of the Yafais which is kept in some secret chamber in Al Qara only to be sounded when the Yafa nation is in sore distress, and has he not the magical gift of rain-making in times of drought, like his ancestors before him. These things they believe, but when the rainfall is sufficient and the Yafa people are free from want or oppression then they treat him with scant ceremony, which is the fate of all gods, ancient or modern, in the East or in the West.

000 The return journey, being downhill all the way, was much easier and quicker and we had to spend only one night in the open. On the second and last day of the return journey something went wrong with the lunch-time arrangements and I mounted once again on the Sultan's donkey, rode past the rendezvous and did not realise that I had done so until I had travelled some distance. Loath to retrace my steps, I decided to forgo lunch and to push on to the Government Guard Post below which, on the way up, we had left our motor transport. I rode alone for most of the way, except for the jemadar and his beovan companion, an elderly Qafli, who had travelled up

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- 600 inexhaustible energy had reduced me to a physical and nervous wreck—and I was the younger man.
- 561 Near Mukalla to the east beyond the landing ground at
346 Riyan is the collegiate town of Ghil-Ba-Wasir, so called by
249 me because it seemed to consist of nothing but schools sur-
439 rounded by a few fields of Hammami tobacco which normally
271 was exported to Egypt via Aden. Primary schools and a large
State Intermediate School with a considerable boarding
(275) establishment catered for the youth of Mukalla and the more
advanced pupils from all over the State. The masters, who were
local men or Sudanese on contract, always left me with an
impression of keenness, competence and contentment. From
Ghil-Ba-Wasir the more promising pupils went on to Aden
College or the Technical Institute in Aden, or to a Secondary
School in the Sudan, depending on the inclination of the
parents or of the Mukalla Government if they were financing
the boys' further education.
- 315 Up in the vast open spaces of the northern limits of the State,
survey parties of Petroleum Concessions Ltd. moved farther
and farther into territory which was practically unknown to
Europeans, on their ceaseless quest for oil, spurred on by recent
increases in the cost of their prospecting licenses. As these
parties pushed their way northwards so did similar parties from
the Arabian-American Oil Company at Dhahran on the
Persian Gulf in Saudi Arabia move steadily southward with
their portable drilling rigs drawn by great tractors and their
air-conditioned living caravans, across the great yellow sand
dunes of the Ruba-al-Khali.
- 712 The frontier became of considerable importance, much more
• 312 so than it had ever been before and we found it advisable to
626 exercise a greater degree of control over our tribes than had
been necessary or desirable in the past. The Sultan was con-
cerned about the peace of these northern marches, and, fearing
an act of aggression, felt that steps should be taken to safeguard
the well at Thamud, the only available water for many miles
around. This was done by building a fort, constructing a land-
ing strip and flying in a garrison of soldiers of the Hadrami
Bedouin Legion. Later, similar measures were taken over to

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the east at Sanau where the only well was between Thamud and the Aden-Muscat frontier. These two places lie to the south of the great sand dunes of the Ruba-al-Khali amidst country more desolate than I have ever seen in any part of the world, and in my time I have flown over, driven over or walked and ridden over some pretty uninviting country.

I went to Thamud for the first time in 1931, before the fort had been built, to inspect the detachment of the Hadrami Bedouin Legion who were living in holes scraped out of the hard sand and furnished with a canvas roof as some protection against the fierce heat of the sun. It was not easy to pick up the well from the air in that featureless country and it reflects great credit on the navigator and the pilot of the plane that they found the landing strip at the first attempt. We landed a mile or so from the well, and the only signs of life as we drove to the well were the store-cum-hospital tent, a modest affair of some 160 lbs., which normally would sleep a dozen men, and the two much smaller tents of the Military Assistant to the Resident Adviser and the Commandant of the Legion who had joined the detachment temporarily, the former a Scot from the Highlands and the latter a stout and jovial Arab on secondment from the Arab Legion in Trans-Jordan.

A guard was mounted, which I inspected, and I do not recall ever having seen a better turned-out or smarter body of men anywhere. These men, who are recruited from the bedouin tribes, are responsible among other things for guarding the long Aden-Saudi Arabian frontier, and they do their work very well. They work under the direct control of their own Arab officers who command the Frontier Posts and who are responsible for the motor patrols which operate between the Posts. These motor patrols are equipped with Land-Rovers and carry portable wireless sets which enable them to keep in touch with their parent Post. The Military Assistant is stationed hundreds of miles away in Mukalla where the Commandant also has his headquarters, so that these Arab officers and their men are normally very much on their own and quickly learn to use their own initiative in dealing with sudden emergencies and solving the various problems which are the normal lot of

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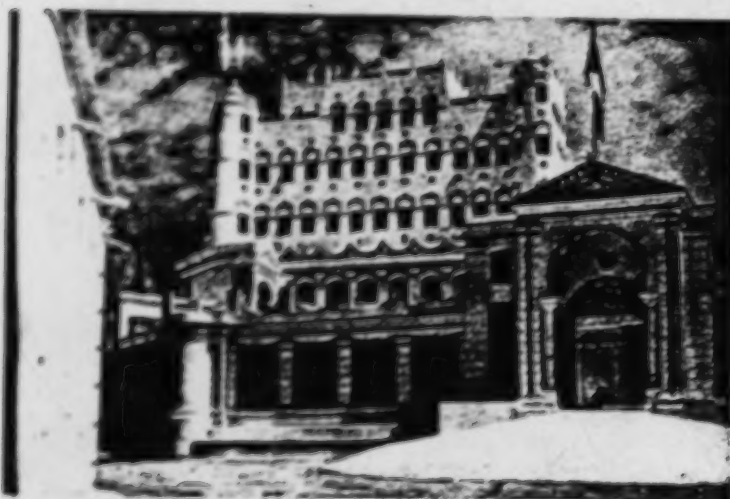
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2: Hickinbotham G-4, 5 (ca. 1931-ca. 1957)
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THE WILLY BELOW A HADHRAMI BEDOUIN LEBRON POST IN THE NORTHERN ORIENT

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THE KATHIRI SULTAN'S PALACE AT SAIVUN

[facing p. 146]

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CHAPTER EIGHT

Protectorate Development

THE people of all the States of the Protectorate are, for the most part, hardworking and competent farmers depending as they do primarily on agriculture for their living. Fate has not treated them very kindly, having so arranged matters that the areas with the most tillable land have the smallest rainfall. The absence of rain is compensated for in some places by the presence of water-courses which, though dry for most of the year, become flooded during the late summer and autumn when there is, normally, heavy rain in the hills. These flood waters have, in Lahej and in Abiyan and in one or two other areas, been harnessed and an irrigation system spreads the water over the land and the valuable cotton and other crops are the result.

The idea of developing the Abiyan plain was conceived by Brian Hartley, the then Director of Agriculture in 1940, when shortage of foodstuffs, due to the World War, turned everyone's thoughts to finding alternative local sources of supply which would not be affected by shortage of shipping and the interruption of normal sea communications. Abiyan is a flat open plain triangular in shape with the apex buried in the Yafa hills and the broad base along the shores of the Gulf of Aden and the Indian Ocean. It slopes gently from north to south and it is intersected by two large Wadis, the Bana and the Hassan. These two Wadis run far up into the highlands of the Yemen and every summer the seasonal floods come rushing down them as the rain clouds from the Indian Ocean break over the distant hills. These floods are rich in silt which fertilises the soil on which it is deposited. Hundreds of years ago

241 Hundreds of years ago Aden

133 the value of these silt-laden seasonal floods was realised by the
 • 312 people of the plain, and they initiated an elaborate irrigation
 134 system, the remains of which exist to the present day. Years of
 726 inter-tribal warfare which benefited no-one, brought the
 original system to ruin and the land went out of cultivation
 and the silt-laden waters rushed unimpeded headlong to the
 sea to discolour the ocean for many miles.

654 Hartley started with a modest capital of £10,000 granted
 312 by His Majesty's Government for the purchase of seed grain
 241 and for the hiring of bullocks to build dams and till the ground;
 648 and with this modest sum he was able to bring 700 acres under
 [726] cultivation. The tribes were loath to give up what had become
 their battle-field, and their silly futile squabbles interrupted
 Hartley's efforts until the patience of the Aden Government
 was exhausted and measures were taken to enforce security
 in the area.

648 Once the World War was over, food production was no
 654 longer of paramount importance, and with the economic
 248 future of the area in mind long staple Egyptian cotton cultivation
 178 was successfully introduced, and by an Administrative
 Order of my predecessor, an organisation known as the
 Abiyan Board was set up to manage the whole agricultural
 project. Additional capital to the extent of £270,000 was
 obtained as a loan from His Majesty's Government and there
 was rapid development, so that by the time I became Governor
 several thousand acres were under cotton cultivation. The
 Board directed the agricultural policy of the area, was respon-
 sible for pest control, owned and operated the heavy agricultural
 machinery necessary for the economic working of the land,
 owned and operated two cotton ginning factories, controlled
 the distribution of flood water through the irrigation canals
 and channels, and was responsible for the shipping and market-
 ing of the cotton crop.

649 In spite of the changed circumstances of the Board they
 continued to function by virtue of the original Administrative
 Order. All efforts by my predecessor to regularise the position
 by persuading the Fadli and Lower Yafa States, within whose
 territories Abiyan is situated, to enact decrees failed owing to

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- 245 camel from the high hills of the interior. Coffee will not grow below 4,000 ft. at the latitude of Aden and the Yemen.
- 247 Away to the east on the Asdhalh plateau and in the other high regions, wheat and barley are cultivated by well water
- 243 irrigation from shallow wells, and apricot trees grow naturally
- 312 among the fields and grape vines run over the trees that border
- 245 the grassy valleys. Much attention has been given to increasing the fruit cultivation and to the growing of tomatoes and other
- (177) vegetables in the summer time when the low lying plains are far too hot. Plums and apples and peaches and walnuts have been introduced successfully, and lower down citrus cultivation has had surprisingly good results. Originally, of course,
- 62 the idea was that these fruits and vegetables would be available
- 178 to the Colony markets and to a certain extent this has proved
- 33 to be true, but no-one anticipated the extent to which local consumption of vegetables and fruit would increase in the Protectorate itself. It is extraordinary how quickly people will develop a taste for new varieties of vegetables, as I had found in Muscat when I first introduced cabbages. Nobody had seen them before and at first I had to give them away and persuade people to eat them, but it was not long before they came and helped themselves. It was much the same in the Protectorate with lettuce, which was looked upon with distrust when I first travelled to Loder and Mukcirra, but by the time I left twenty-five years later no meal was complete without a dish of salad.
- 243 Down in the plains the main crops are sorghum and bullrush
- 262 millet which grow throughout the Protectorate and provide the staple diet of the people who grind and pound the grain into coarse flour from which they make a very palatable unleavened bread. Where water is available in sufficient quantity as at Lahaj and in the Wadi Hadhirami, there are extensive date-palm plantations and bananas, and other Eastern fruits are cultivated with particular emphasis on the melons which flourish abundantly and are of excellent quality.
- 245
- 312
- 244
- 241 Two things have handicapped agricultural development in
- 441 the Protectorate. The first of these is lack of money and the second lack of a suitable marketing organisation. The power to

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178 new displacing the old is an inevitable process and provided it is done at a reasonable pace need not be disturbing and is often imperceptible. It is the speed of change which matters, and that is what caused the trouble in the Protectorate. In England the change from horse-drawn transport to motor transport took twenty years or more and there was ample time for readjustment. In Aden it took as many days from the time a new major road was open to motor traffic, and the unemployed camel men sat nursing their rifles and wondering how to prevent their animals and themselves from starving. It was not long before they seized the weapon in their hands and commenced to use it to drive the lorries off the roads. The State and Political Authorities intervened before too much damage was done and negotiations resulted in agreements which restricted the use of lorries to named kinds of merchandise, and so time was gained for readjustment.

(184) The Eastern Aden Protectorate was more affected than the Western by road development and on more than one occasion troops had to be used to persuade the camel men and their friends to be amiable and not to interfere with the lorry traffic which might have had very serious consequences. The Wadi Halhramant, that vast cut through the limestone plateaus of the Jil filled with palm groves and white-walled towns, peopled by the most astute and the hardest business men in the world, was subject to droughts which twice in living memory had led to famine: the reason for this had been that the whole irrigation system depended on the availability of bullocks to draw water from the shallow wells and when, during the drought, the corn crops had failed, the animals had either to be fed on weed grain or be left to die of starvation; in the former case it meant that when the rains did come, there was no seed to sow, in the latter that there were no animals to draw water.

402 The solution was to eliminate the dependence on bullocks and 177 make available to farmers and date garden owners small diesel 241 pumps with which to irrigate their land. They paid cash for [432] the pumps if they could, or if they couldn't they put down a deposit and paid the balance in monthly instalments. A maintenance service, based on a central workshop, which had been set

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Most of the dwelling-houses within the Settlement limits are 342 well ventilated and lighted and are satisfactory from a public health point of view. Endeavours are being made to effect an improvement in architectural standards.

There are still a few buildings in Maala and Sheikh Othman where the old type of house exists, but improvement goes every year by demolition and reconstruction, and the majority of the population is comfortably housed.

Water Supply

The water supply of Aden is obtained from six bore-wells situated 342 near the village of Sheikh Othman. The supply for the civil population is pumped into two tanks each of 100,000 gallons capacity, 345 and from these tanks the supply gravitates through a 15-in. main to a storage reservoir of 400,000 gallons capacity at the Iskhana.

The total amount of water raised from these bore holes during 1938 was 156,178,000 gallons. This represents an average daily supply of 647,000 gallons, and taking the population as 47,000 an average of 14 gallons per head per day for all purposes.

The following table gives details of the water used in Aden during the years 1936, 1937 and 1938.

Details of water.	1936.	1937.	1938.
Total water raised at bore-holes.	156,178,000	157,348,000	156,178,000
Total water delivered to Fortunes area.	112,429,000	111,946,000	113,523,000
Total water delivered to Military.	23,384,000*	23,871,000	27,964,000
Total water sold for shipping purposes.	18,489,000	20,794,000	24,873,000
Total water used for gardens.	78,000,000	84,387,000	98,887,000
Water consumed, i.e. per cent. loss.	31.5 per cent.	23.0 per cent.	21.10 per cent.

* This high figure was due to the extra number of Military temporarily drafted to Aden in 1936.

The increase in the consumption of water for all purposes is due chiefly to the extension of the distribution mains.

MAINTENANCE WORK

The majority of the work carried out by the Water and Drainage 653 Department comes under the above heading and includes the following :—

(1) *Pumping plant.*—This comprises five reciprocating and five 376 centrifugal pumps, all of which have been examined regularly and kept in good mechanical order. These pumps work on an average of 12 hours a day, and the supply was not once interrupted during 342 the year.

[37] The standby electricity generating set was used once each week and generates enough energy to run two bore-hole pumps, giving approximately 17,000 gallons per hour.

576 (1) *Reservoirs and Tanks*.—These comprise 11 steel plate tanks and two masonry reservoirs situated over the distribution system.

(2) *New Bore-hole Pump*.—A new type of bore-hole pump, in which both the electric motor and the pump are lowered into the bore-hole and run submerged was purchased and installed in bore No. 3 at a cost of Rs. 11,925.

The pump has not been entirely satisfactory as sand in the water has caused damage to the pump and motor bearings. It is considered that it proved, however, that the supply of water from the bores can be increased, without affecting the underground storage level. During a continuous test of 22 days, 8,976,000 gallons of water were raised from bore No. 3 without lowering the normal rest level.

32 (4) *Distribution*.—The water-supply to the Fortres was uninterrupted during the year, and no restriction whatever in the use of water was imposed on the general public.

365 Owing to the Electricity Department being unable to cope with the great demand for energy between the hours of 6 p.m. and 10 p.m. pumping at Sheikh Othman and Isthmos was restricted during these hours. Owing to the existing storage capacity of the reservoirs, this restriction was applied only to the shipping companies refilling their water boats for supplies to shipping during these four hours. In practice very little inconvenience was caused.

312 (5) *Storage Capacity*.—The present storage capacity of the Waterworks Department is as follows:—

	Gallons.	Approximate total hours Domestic supply.
(a) Sheikh—Civil Supply	195,000	27
Othman—Supply to R.A.F.	37,000	18
Isthmos	400,000	64
(b) Fortres { Juber Ridge	180,000	48
Crater	216,000	56
Tawaki	96,000	30
Total Storage Capacity	1,073,000	

The total hours supply figures are based on the assumption that in time of emergency the supply to gardens and shipping would be stopped.

(6) *Water Connections*.—The total number of water connections to different premises/in Aden is 2,595. The number of new connections made during 1938 was 549 compared with 417 for the previous year.

ADEN, 1938

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315 premises were disconnected, of which 110 were eventually ³² ₃₄₅ reconnected.

(7) *Other Supplies*.—5,814,000 gallons of bore water were supplied free for flushing sewers and 120,000 gallons for fire fighting and practices.

(8) *Water Analysis—Chlorination*.—Three bacteriological and one ⁴⁶¹ chemical analyses of both the raw and the chlorinated water were carried out during the year. The bacteriological analyses all showed very satisfactory results in respect of all the samples for drinking water.

The chemical analysis showed that the water was very similar chemically to that tested in 1935 and 1937. It is noteworthy that the sodium chloride (salt) content has not increased.

The whole of the water supply to the Fortress was automatically chlorinated at Ichmus, the dose being $\frac{1}{2}$ part per million by weight. The water at Sheikh Othman was also safeguarded by placing $\frac{1}{2}$ lb. of bleaching powder in each tank every morning.

VI.—PRODUCTION

Veterinary

Condition of Live Stock and Meat.—The condition of the live stock ²³¹ from the hinterland was not up to the usual standard, due to cattle ⁴³⁷ being brought in from famine stricken areas. The condition of the live stock from British Somaliland, particularly sheep and goats, was very good. The quality of mutton was 1st class and beef 2nd class.

Imports from British Somaliland and Djibouti :—72,180 sheep and goats, 137 camels, 5 cows, 6 ponies, 2 mules.

Imports from Arabian and Red Sea Ports :—1,529 sheep and goats, 5 milk cows, 15 horned cattle, 12 calves, 3 guanicoes.

Imports from the hinterland :—1,129 horned cattle, 617 large calves, 373 milk cows, 8,293 goats, kids and sheep, 34 camels, 15 donkeys, 1 pony.

Export from Aden :—3,748 sheep and goats, 20 horned cattle, 16 large calves, 32 camels, 1 donkey, 19 monkeys.

Bovine Contagious Disease.—Rinderpest accounted for 214 deaths ²³² among milk cattle and calves of Crater and Tawahi.

Preventive Measures.—The epidemic was controlled by the following precautionary measures being taken :—

1. All infected animals were segregated.
2. Stables were regularly disinfected.
3. Cattle were inoculated with anti-Rinderpest serum.
4. Carcasses were incinerated and the movement of horned cattle was controlled.

ADEN, 1937

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Water Supply.

The water supply is obtained from six bore-wells situated near Z(2) the village of Sheikh Othman. The supply for the civil population is pumped into two tanks each of 100,000 gallons capacity, and from these tanks the supply gravitates through a 15-in. main to a storage reservoir of 400,000 gallons capacity at the Isthmus.

There is a pump-house at the Isthmus, and the water is drawn from the storage reservoir and chlorinated automatically by a venturi-operated "chloronome" before being pumped to Crater and Tawahi. Some 2,000 houses have been connected to the main water, and fire hydrants have been sited at intervals throughout the system. There are filling-stations for camel-carts at Crater, Tawahi and Sheikh Othman, and by this means water is distributed to houses which have so far not been connected to the main supply. The water is of exceptional bacteriological purity, although rather hard.

VI.—PRODUCTION.**Veterinary.**

Cattle, sheep and goats are imported from British Somaliland, 439 Arabian and Red Sea ports and from the Yemen and Aden Protectorate for consumption in the Colony. As an indication of the quantity imported annually it is of interest to give the figures of imports from the 1st April, 1937, to the 31st December, 1937.

Cattle. Sheep and
 Goats.

From British Somaliland and Arabian and Red Sea

ports	262	69,778
The Yemen and the Aden Protectorate	2,129	6,369

Of the total imports, only 842 sheep and 26 milk cows were re-exported.

Rinderpest.—There was an outbreak among the milk cows 232 in November and out of over 100 cows 36 died. The cattle were treated by inoculation, and quarantine restrictions were imposed.

Fisheries.

The fishing is, generally speaking, good, but the quantity is 226 greatly influenced by the movements of the different species of sardinella on which the large species feed. Shark, barracuda, horse-mackerel, sea-perch, dolphins, the smaller members of the tunny family, rock cod soles, and mullet are the principal edible fish. Sword or sail fish make their appearance at certain seasons of the year but are not easily saleable for human consumption. Crabs and crawfish are to be had at all seasons, and oysters are available in the winter months. The fishermen are a very industrious people and employ various kinds of nets as well as hand-lines in their work. The nets used are of the stationary, circular throwing, and drag varieties, the latter being used from the shore. In addition a special net is operated from boats working in pairs during the monsoon period. Throwing

PUBLIC UTILITIES AND PUBLIC WORKS

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in the history of the Prison. The daily average for the month was 434-697. This imposed a great strain on the prison resources in accommodation, equipment and staff.

Most of the prisoners, about 80 per cent., were from the Yemen and the Protectorate, the rest being local men.

Juvenile convicts under the age of 15 were as far as possible kept apart from the adults and were provided with separate sleeping accommodation. Sixty-four juvenile convicts were admitted during the year compared with 73 in 1946. They do not form a serious problem, as far as the prison is concerned, for at any one time there are not more than 3 or 4 of them.

Cane work, both new and repairs, of various types, shoe-repairing, sports-net making, re-stringing of tennis racquets, and gardening were taught to some of the long-term prisoners.

The health of the prisoners was good on the whole, there being no outbreak of any serious illness. The sickness rate was, however, higher than in 1946. The main prevailing diseases were scabies, dermatitis, ulcers, influenza, venereal diseases and malaria—the last two being contracted before admission to the Prison.

A Medical Officer from the Civil Hospital attends the Prison Dispensary every morning and gives necessary treatment to the sick. Those needing in-patient treatment are admitted into the Civil Hospital.

There were no deaths during the year.

There is no system of probation or of welfare for discharged prisoners in Aden at present, but the matter will receive the attention of Government as soon as a Welfare Officer is appointed.

Chapter 10: Public Utilities and Public Works

Both the waterworks and the electricity supply to the Colony are publicly owned and form part of the Public Works Department. A brief description of each is given below.

WATERWORKS

Prior to 1918 the domestic water supply of Aden was almost wholly derived from condensed sea water. From 1914 to 1918 experimental boreholes were sunk at Sheikh عثمان and potable water was found in two thin layers of sand and gravel at 136 and 208 feet respectively below the surface.

Since that date 10 additional boreholes (including one in 1947) have been sunk and pumping plant installed, and the table on page 44 shows the increase in the consumption of water over the years:

	1936 Million gallons	1941 Million gallons	1947 Million gallons
312 Total water raised from boreholes	205	153	178
365 Water consumed by civil population	45	115	181
Water sold to shipping	18	61	53
Water consumed by military	21	96	120
Water used in gardens	70	51	114
Other purposes, including water un- accounted for	41	21	111

1652 As no census was taken in Aden between 1931 and 1946, reliable figures of the average daily consumption per head of the civil population for 1936 and 1941 cannot be given. The figure based on the 1946 census is 99 gallons per head per day.

The water is pumped direct from the boreholes into reservoirs, and gravitates through a 25-inch diameter pipeline 7 miles in length into the lachman, where it is pumped into service reservoirs, and distributed to the various parts of the Colony by gravitational mains, of which there are over 26 miles of 2½-inch diameter and above. The total capacity of the reservoirs in the Colony is 2,820,000 gallons.

All supplies are metered, and at the end of 1947 over 4,400 domestic water meters were in use. Four hundred and one new connections were given in 1946.

1/35 The cost of water to the general public is 4 annas less 10 per cent. per 100 gallons (approximately 3s. 3d. per thousand gallons). The revenue derived from the sale of water during 1947 was Rs. 6,84,250 (£51,318) and the total expenditure Rs. 5,08,970 (£44,927).

Seven per cent. of the total water used by the general public is supplied free of charge from 26 standposts erected in various parts of the Colony.

364 Although the water at source is of a very high standard of purity bacteriologically, it is automatically chlorinated to combat any possible pollution through dust or any other agency.

SEWAGE DISPOSAL

365 The water-works department is also responsible for the construction and maintenance of all sewers in the Colony. All sewage discharges into the sea through five separate sea outfalls taken to just below low-water mark. Except at Shrikh Othman, where small primary settling tanks have been constructed there are no sewage disposal works.

In order to minimise the fouling of the harbour and beaches all water-closets are required to discharge into the sewers through a septic tank, where all solid matter is first liquified.

Government have approached an eminent London firm of consulting engineers, with a view to the preparation of a complete sewerage scheme for the Colony.

The cleansing of sewers is carried out by the Public Health Department.

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697⁶² buildings are nearing completion. Special attention is paid to cleanliness and sanitation. The existing buildings now provide for the separation of juveniles and of first offenders from habituals.

During the first ten months of the year the average prison population was 50 per cent above that of the corresponding year. This increase was mainly due to an influx of prisoners convicted during the December riots among the Jews and Arabs. The prison population was doubled, and during the first two months it was so high that the dormitories and cell accommodation was subjected to severe strain, and for a time there was unavoidable overcrowding. Effective steps were taken by the Public Works Department to provide additional accommodation and this, with the release of many of the rioters on completion of their sentences, reduced the overcrowding and conditions became normal. The daily average number during the year was 330. Throughout the period the discipline was well maintained.

A notable feature of the year was the introduction of two additional industries—weaving and tailoring—and very remarkable progress was made, particularly in the weaving industry. Twelve hand pit looms producing curvet and other kinds of cloth, longies, counterpanes, shena, etc.; upright looms producing designed pile carpets; ground looms producing carpets and durries, etc., were in operation. It is hoped to encourage and expand this particular industry, the principal aim being to give prisoners a trade in hand to rehabilitate themselves on their release in order to become good citizens.

The health of the prisoners was good on the whole, there being no outbreak of any serious illness. The sickness rate was, however, higher than that for the past year. Many of the prisoners certified as sick and unfit for work were suffering from venereal diseases contracted before admission to Prison.

A Medical Officer from the Civil Hospital attended the Prison dispensary and gave necessary treatment to the sick. Prisoners needing in-patient treatment were kept in the Prison Hospital. Cases needing immediate attention were admitted to the Civil Hospital. There was one death in the Civil Hospital from natural causes.

There is as yet no discharged prisoners' aid society nor an after-care organisation.

Chapter 10: Public Utilities and Public Works

365 Both the waterworks and the electricity supply of the Colony are publicly owned and form part of the Public Works Department. A brief description of each is given below.

WATER AND DRAINAGE

365 312 The water supply of Aden is drawn from 10 boreholes situated in and around Sheikh Othman Gardens. The total water raised during 1948 was 585,414,000 gallons, an increase of 1.3 per cent on 1947. This represents an average daily supply of 1,603,000 gallons and, taking the popu-

PUBLIC UTILITIES AND PUBLIC WORKS

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lation of Aden on 80,000, gives an average daily consumption, after deducting water to shipping, gardens and military, of 6.9 gallons per head. The average daily consumption per head for all purposes is 20 gallons.

The following table gives details of the water used in Aden during the four years 1945, 1946, 1947 and 1948.

Details	1945 Million gallons	1946 Million gallons	1947 Million gallons	1948 Million gallons
1. Total water raised at bores	549.2	594	577.8	585.4
2. Water to civil population through house connections	124	144.5	160.8	182.5
3. Total water sold to military	174.3	143.7	120.2	111.5
4. Water sold to shipping in port	50.4	43.0	52	53.4
5. Water sold at filling stations	10.8	9.5	7.7	5.4
6. Water used for gardens	83.0	143.3	114.2	95.3
7. Total water supplied free of charge (including gardens, flushing, fire stand-pipe, fire-fighting etc.)	114.4	170	140.6	124.2
8. Water unaccounted for or percentage loss	13.65%	13.8%	16.5%	17.9%

Pumping Plant. The whole of the pumping plant is in good mechanical condition. The maximum quantity of water, assuming all pumps to be in perfect working order, which can be raised from the bores daily is 2,513,000 gallons.

Boreholes. Six new boreholes in Sheikh Othman Garden have been sunk during the year, five by Messrs G. Stow & Co. and one departmentally. This will give an additional 1,200,000 gallons of water per day when the pumps, which are on order, have been installed.

Reservoirs. The total capacity of the reservoirs is 2,965,200 gallons.

Distribution. The total length of water mains replaced was 7,374 linear feet, mostly 3-inch cast-iron pipes. The total length of new mains laid were 7,750 feet of 4 inches or less in diameter, and 11,703 feet of 6 inches and over.

Water Meters. Further new water meters were received during 1948, and it was found possible to give 968 new connections, compared with 336 in 1945, 261 in 1946 and 401 in 1947.

The total number of meters now in use is 5,323.

Fire Hydrants. The total number of fire hydrants now installed in the Colony is 169. All these are examined, tested and cleaned every four months. This ensures that they are in complete working order in any emergency and it also assists in flushing out the mains.

Consumers. The number of consumers on the registers at the end of 1948 was 5,307, an increase of 881 on that recorded on the same date in 1947.

368 *Fire Standposts and other Fire Supplies.* During 1948, 124,374,000
 365 gallons of water representing 21.2 per cent of the total water raised was
 312 issued free of charge for fire-fighting, gardens, fire standposts, Public
 Works etc. 13,065,000 gallons of water were issued free of charge to the
 general public from the 32 fire standposts now erected in the various points
 of the Colony.

364 *Sterilisation of Water.* The whole of the water (except that supplied
 265 to Sheikh Othman gardens) is chlorinated before distribution, and the
 312 many bacteriological analyses made during the year proved that the water
 was eminently fit for domestic consumption.

Drainage Works. This covers the maintenance of the whole of the
 sewerage system in the Colony, with the exception of cleansing which is
 carried out by the Public Health Department.

652 *New Work.* The expenditure on new works during 1948 was
 Rs. 265,517. The principal items being shown below:

	Ra.
1. New house connection and minor extension to water mains	57,351
2. Minor drainage works	8,435
3. Sinking new boreholes at Sheikh Othman	74,000
4. New distribution mains	51,195
5. Store room at Isthmus Pump House	2,770
6. Quarter for pump cleaner	3,251
7. Extension of Maalla drainage	12,000
8. Two flushing tanks	3,576
9. New 9-inch water main from Sheikh Othman to Khormaksar	13,915

Finance. The total receipts for 1948 were Ra. 709,546 and the
 expenditure Ra. 653,896.

The total expenditure on the water supply since its inception to 31st
 December, 1948, is Ra. 7,024,204 and the amount received from the sale
 of water during the same period is Ra. 8,349,272.

SEWAGE DISPOSAL

365 The Waterworks Department is also responsible for the construction
 364 and maintenance of all sewers in the Colony. All sewage discharges into
 the sea through five separate sea outfalls taken to just below low-water
 mark. Except at Sheikh Othman, where small primary settling tanks
 have been constructed, there are no sewage disposal works. In order to
 minimise the fouling of the harbour and beaches all water-closets are
 required to discharge into the sewers through a septic tank, where all
 solid matter is first liquefied.

Government have approached an eminent London firm of consulting
 engineers, with a view to the preparation of a complete sewerage scheme
 for the Colony.

The cleansing of sewers is carried out by the Public Health Department.

ADMINISTRATION

Aden Colony also includes Perim Island which is administered by an Administrator who is also the Commissioner of Police, Aden. The population of the island is 381. The majority of the islanders are fishermen, and dried fish is exported to Aden. In the past there has been pearl fishing, but this year no pearl fishing contract was taken.

There is a small Police detachment in the island together with medical staff and lighthouse staff.

There is no natural water supply on the island; sea-water distilling plant provides sufficient water for the supply of the population and for the occasional ship which comes in for emergency water supply.

Up to the end of 1948 Cable & Wireless Ltd. maintained communication by marine cable. The cable became unserviceable in 1948, and it was decided not to repair it. It is likely that communication will soon be established by wireless. A R.A.F. aircraft makes a flight to the island once weekly and carries mail and passengers from Aden.

The Governor of the Colony is also Governor of the Aden Protectorate, which is not administered by the Colony Government. In each of the Western and Eastern Protectorates the Governor is represented by a British Agent, who deals with the various Rulers and Treaty Chiefs on the basis of treaties concluded with them.

There is no one Government for the Aden Protectorate; various Rulers and Chiefs are in protective treaty relations with His Majesty's Government. The Protectorate includes the island of Socatra.

The administration of justice within the Colony is entrusted to the Supreme Court, a Court of Small Causes for certain specified civil cases and Magistrates' Courts for criminal cases. The law of the Protectorate is largely tribal custom, but in certain chiefdoms the Shari's code of Modern law is recognised, especially in the Qu'aiti State of Shihir and Mukalla (ruled by His Highness Sultan Sir Salih bin Ghalib al Qu'aiti, K.C.M.G.), which State legislates by published decrees.

During 1948 the local government of the Colony remained vested in two Township Authorities. The larger is known as the Fortrea Township Authority and the area covered by it embraces the Isthmus and Peninsula with a civilian population of close on 60,000. The Military and the R.A.F. establishments are within this area. The other Authority is known as Sheikh Othman Township Authority and takes its name from the built up township of 21,000 persons, all non-Europeans, situated some four miles from the Isthmus. The area governed by it includes this township and the remainder of the Colony in which are to be found four small coastal villages the inhabitants of which earn their livelihood mainly by fishing, basket making and lime burning, using shells collected on the sea shore for this last purpose, and who look on the built up area of Sheikh Othman as their main shopping centre and the place in which they find their simple means of recreation. The total population of these villages is approximately 2,000.

The Township Authorities hold fortnightly meetings in the exercise of their functions of superintending various services of municipal character, such as control of markets, maintenance of public health and sanitary

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There is one prison only and no camps. The prison buildings are enclosed in a spacious and airy compound, surrounded by a high stone wall and they consist of an administration block and widely spaced and well-ventilated dormitories, cells, a kitchen and a hospital.

There are six superior cells exclusively for the accommodation of "A" and "B" Class prisoners. Special attention is paid to cleanliness and sanitation and a high standard in both is maintained.

The general state of health of all prisoners has been satisfactory. There was no outbreak of any serious illness. Venereal diseases, contracted before admission to the prison, were common among the prisoners.

A Medical Officer from the Civil Hospital attended the prison dispensary daily and was assisted by a full-time hospital assistant. Prisoners reporting sick were treated at the prison hospital, but cases needing immediate attention were admitted to the civil hospital.

There were six deaths from natural causes, four in the civil hospital and two in prison. Due to the lack of accommodation at the civil hospital, cases of pulmonary tuberculosis were treated in the prison sick-bay. Of the four cases, two died, one was cured and one is making a steady progress.

The official and non-official visitors of the Prison Board visited the prison regularly. His Excellency the Governor paid four visits to the prison during the years under report. All prisoners were given complete freedom of access to the visitors and every opportunity to register complaints or to ventilate any grievances.

There is, as yet, no system of probation or of welfare for discharged prisoners.

Chapter 10: Public Utilities and Public Works

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The water and electricity supply services are publicly owned and are operated by the Public Works Department.

WATER AND DRAINAGE

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Prior to 1928 the domestic water supply of Aden was derived almost entirely from condensed sea water. From 1924 to 1928 experimental boreholes were sunk at Sheikh Othman and potable water was found in two thin layers of sand gravels at 136 feet and 208 feet respectively below the surface.

Since 1928 fifteen additional boreholes (including five in 1948) have been sunk, and the following table shows the increase in consumption :

	1936	1941	1949	1950
	(all figures in million gallons)			
Total water raised from boreholes	205	353	680	711
Water consumed by civil population	45	115	208	235

PUBLIC UTILITIES AND PUBLIC WORKS				41
Water sold to shipping ..	18	63	69	73
Water consumed by Military ..	25	96	139	156
Water used in gardens ..	76	32	161	142
Other purposes including water unaccounted for	41	25	103	103

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The water is pumped direct from the boreholes into reservoirs and gravitates through a 15 in. diameter pipeline 7 miles in length into the harbour, where it is pumped into service reservoirs and distributed to the various parts of the Colony by gravitational mains, of which there are over 28 miles of varying diameter from 9 in. to 24 in. The total capacity of the reservoirs in the Colony at present is 2,945,000 gallons. A new 3-million-gallon reservoir above the Main Pass is under construction and will be completed in 1952.

All supplies are metered and at the end of 1950 over 6,330 domestic water meters were in use. Six hundred and thirty-four new connections were given in 1949, and 674 in 1950.

The cost of water to the general public is 4 annas less 10 per cent per 100 gallons (approximately Rs. 34. per thousand gallons). The revenue derived from the sale of water during 1949 and 1950 was Rs. 16,15,649 (£121,177) and the total expenditure was Rs. 12,21,898 (£91,642).

Six per cent of the total water used by the general public is supplied free of charge from 32 standposts erected in various parts of the Colony.

Although the water at source is of a very high standard of purity bacteriologically, to combat any possible pollution through dust or any other agency it is automatically chlorinated.

The maintenance and provision of new sewers is the responsibility of the Public Works Department, but the clearing of sewers is carried out by the Public Health Department. All sewage discharges into the sea through five separate outfalls extending to just below low water mark. At Sheikh عثمان, small primary settling tanks have been constructed, but there are no sewage disposal works.

In order to minimise fouling of the harbour and beaches, all water closets are required to discharge into the sewers through a septic tank, where all solid matter is first liquified.

ELECTRICITY SUPPLY

Electricity as a public utility was first introduced into Aden in 1926, when the power house was completed, and three 130 kva generating sets with oil-fired steam boilers and necessary auxiliary plant were erected.

The station was subsequently enlarged, and at the end of 1947, three turbo generators of 1,200 kw., 1,200 kw. and 750kw. respectively, with boilers of a steaming capacity of 47,000 lb. per hour were installed. In addition, two 250 kw. generators powered by diesel engines are available in an emergency.

The installation of the stand-by diesel generator (250 kw.) at Sheikh

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697 Officer from the Civil Hospital attends the prison dispensary daily. There is a full-time hospital assistant to assist the doctor.

Education

Rehabilitation and education of prisoners is difficult to achieve; most of them are illiterate and very few are serving long sentences. An attempt is made to give them rudimentary lessons in English and Arabic. Those who can read either English or Arabic are able to borrow books.

Training

All convicted prisoners are put to work and are trained in one of the following crafts: cane work, weaving, carpet making, tailoring and carpentry. In addition, the prisoners are employed on stone-breaking, shoe-repairing, gardening, cooking, washing and water drawing.

An earnings scheme has been recommended by the Board of Prison Visitors and the question of its introduction is under consideration.

There is no extra-mural work in operation at present.

Remission System

A convicted prisoner sentenced to imprisonment for a period exceeding one month may by industry and good conduct earn a remission of up to one-third of his sentence.

After-Care

No after-care arrangements for prisoners on their release as yet exist.

Chapter 10: Public Utilities and Public Works

WATER SUPPLY

365 1312 The water supply is obtained from bore-wells situated at Sheikh Othman, some eight miles from the principal industrial and residential areas. No treatment other than chlorination is required, though the water has a rather high percentage of dissolved salts.

The average daily consumption is about two and a half million gallons. The following figures show the increase in the consumption of water between 1950 and 1952:

	1950 <i>Million gallons</i>	1951 <i>Million gallons</i>	1952 <i>Million gallons</i>
Water raised from boreholes	710.5	767.0	901.9
Water consumed by civil population	235.0	264.0	293.6
Water sold to shipping	73.0	82.3	88.7
Water consumed by Military	158.3	189.0	227.9
Water used in Public Gardens	142.9	56.9	28.5
Other purposes (including water unaccounted for)	101.3	174.8	263.2

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ADEN COLONY AND PROTECTORATE

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nion was made in the Fortren Township for the election of three members, who must be of Aden or British birth; the franchise was limited to males born or resident for a stipulated period in Aden, and with a property qualification which was reduced by half (giving an electorate of about 5,000) after the 1949 election had resulted in the return of an Arab merchant, a Pakistani advocate, and a Parsee merchant.

The climate of Aden Colony and of the southern coast is generally pleasant between November and March. The summer heat, though great, is less intense than that of the interior of Arabia or of Iraq, but this is more than offset by the oppressive humidity between April and October. Rainfall is trifling, but heavy thunderstorms occur irregularly. The town relies for its water-supply on bore-holes at Shaikh Othman, supplemented by supplies in the famous Tanks, which date from pre-Islamic times and were restored for use in 1856. They have a storage capacity of 8 million gallons. Aden is a free port and there are no customs dues except on liquor, drugs, tobacco, motor spirit, and salt. Salt is a government monopoly, and is produced locally in large quantities for export by evaporation from sea-water. The only other local industries are dhow-building, soap manufacture, dyeing, cigarette-making, and fishing.

The present prosperity of the Colony depends on its importance as a bunkering port for coal and oil, for which purposes it handles a tonnage of shipping comparable with that of Liverpool. This balance will be altered when the Anglo-Iranian Oil Company's new 5-million-tons-a-year refinery, begun in November 1952, comes on stream in 1954. Apart from the export of salt (which supplied in 1950 75 per cent of India's imports of that commodity), the bulk of Aden's other trade consists of entrepôt and transshipment between neighbouring countries. The number of vessels, exclusive of country craft (sailing dhows, etc.) which entered the port during 1951 was 4,338 with an aggregate tonnage of 18,715,839, more than double the figure for 1938; the number of country craft was 1,643 with a tonnage of 128,201, a decrease of 17 per cent compared with the previous year. Recent estimates of imports and exports were:

	Imports (£ million)	Exports
1948	2.29	1.88
1949	2.73	2.19
1950	3.49	3.25
1951	4.19	3.70
1952	4.71	3.80

(Source: *Digest of Colonial Statistics*, no. 10, September-October 1953).

¹ *Petroleum Press Service*, December 1952.

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342 of size and construction, the houses usually have flat roofs, which can be utilized during the summer months for sleeping purposes. The increase in population within recent years has led to the growth of settlements of *kutcha* huts, made of reeds, palm leaves or corrugated iron, in the outlying districts. Some of the laborers employed in handling cargo or coal are quartered in barracks, but many live in crude hut settlements in which the sanitary conditions are a menace to both townships. Slum clearance was started in 1943, and housing programs have since been undertaken in Crater and Sheikh Othman. They are financed by the Colonial government and subsidized by grants from the British Colonial Development and Welfare funds.

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361 Stone, mud brick and brushwood are utilized for building purposes in the Protectorate. The type of housing and the character of the villages in different areas are governed by the materials available and the need for making them defensible. Walled settlements predominate, but scattered dwellings surrounded by brushwood stockades are frequent in Western Aden Protectorate. In the towns the larger houses of stone or mud brick have from 3 to 6 stories, with accommodations for the livestock on the ground floor. In contrast with the elaborate dwellings of the wealthy, the homes of the tribesmen are small and rarely of more than one story. They are typically overcrowded, dark and insanitary, while the animals are often kept in close association with the family. The Bedouin in the interior use the traditional camel-hair tents, but the nomadic tribes and fisherfolk near the coast live in huts of straw, thatched palm or matting.

ENVIRONMENT AND SANITATION

WATER SUPPLIES

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342 Water is usually scarce, except in parts of the western highlands which benefit from a heavier rainfall. The main water supply for Aden Colony is derived from 10 deep

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boreholes near Sheikh Othman. It is pumped to tanks, from which it flows through open conduits to a storage reservoir on the isthmus. The supply for the township of Aden is pumped from the reservoir to storage tanks located on the hills above Crater and the modern harbor suburb of Tawahl. It is then distributed to individual house connections and to filling stations, from which camel carts peddle water to the older sections of the town. A portion of the supply is diverted at Sheikh Othman for irrigation purposes, while the remainder is chlorinated at the isthmus reservoir before being distributed to the towns. The domestic supply is subjected to weekly bacteriologic examinations in the laboratories of the government hospital. In spite of frequent inspections, however, numerous possibilities for contamination are connected with the sale of household supplies from camel carts. In the summer months, the temperature of the water at the tap often reaches 95° to 98° F., and cooling devices are necessary. Supplementary supplies are obtained from numerous shallow wells, but in the majority the water is brackish and unpotable. The historic Aden "tanks" or cisterns, which date from pre-Islamic times, are rarely filled and have little value as a means of water supply.

The sources of water vary in different parts of the Protectorate. While perennial streams and springs abound in sections of the southwestern highlands, in most areas the rivers and the wadies are seasonal, and flow only for brief periods after the rains. Wells are the most frequent source of supply, but, depending upon the region, water is also procured from streams, springs or rain-water cisterns. In some localities in Eastern Aden Protectorate, it is brought to the towns from distant springs or wells in underground conduits which are comparable with the *qanats* of Iran. The water for Mukalla is obtained from a series of wells at Bakezebur and collected in a reservoir about 4 miles from the town. It is piped to individual outlets in the palaces and the

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Responsibility for the health of the people in the Colony resides in its Medical and Health Department, which is administered by a Director of Medical Services, with headquarters in Aden. There are no organized public health services in the Protectorate. Medical facilities are supported mainly by the British authorities in Western Aden Protectorate and by the local rulers in Eastern Aden Protectorate. As of 1950, there were 4 hospitals, with an aggregate capacity of about 600 beds, in the Colony which served the local residents and accessible portions of the Protectorate. In addition, several government, mission or private dispensaries, 2 venereal disease treatment centers and a maternity and child welfare clinic were in operation. The Protectorate facilities included 2 small hospitals, a child welfare center and 15 dispensaries in Eastern Aden Protectorate: 18 dispensaries in Western Aden Protectorate.

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Water supplies are scarce throughout this region, except in portions of the western highlands. The water supply for the Colony is derived from boreholes and treated by chlorination. Supplies in the Protectorate are obtained from streams, springs, wells or rain-water cisterns. The methods of sewage disposal are primitive in the Colony, as well as in the Protectorate. Limited sanitary controls over the production and the distribution of foodstuffs exist only in THE COLONY.

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